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Supplement to the New England Spiders

BY

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III.—Supplement to the New England Spiders

by J. H. Emerton.

From 1882 to 1892 the writer published in the Transactions of the Connecticut Academy a series of papers containing descriptions and figures of New England Spiders known to him at that time. The present paper contains additional notes, descriptions, and figures of 48 of these species, partial descriptions, figures and references to descriptions of 38 species described by other persons since 1882, and descriptions and figures of 35 apparently new species.

The portion of New England explored is still chiefly eastern Massachusetts and New Hampshire as far north as the White Mountains. In Maine there have been collections on the coast at Portland and Monhegan, and in the north at Bangor and around Moosehead Lake. Explorations in Canada show the extension northward and westward of many Maine and White Mountain species, as *Theridium zelotypum* to Manitoba, and *Epeira patagiata* and *angulata* to the Pacific coast, and *Epeira carbonaria* and *Lycosa greenlandica* in the Rocky Mountains and Labrador. In the south there have been large collections in Connecticut at Simsbury near Hartford, and at New Haven on the coast, and in Rhode Island near Providence.

The distribution of several species has been made clear by collections on Long Island, N. Y., which is the northern limit of *Oxyopes salticus*, *Pellenes cœcatus*, and *Epeira verrucosa*, and where the following species are found in abundance, that extend northward only as far as Connecticut; *Lycosa scutulata, Acrosoma rugosa* and *Argyrodes cancellatus*. In the western part of Massachusetts, Connecticut, and Vermont but little has been done, but small collections in the Adirondacks and the observations of Mr. Banks around Ithaca, N. Y., show only slight differences from the spider fauna of New England.

The writer has depended chiefly on his own collections, but gives his thanks to G. W. Peckham, Nathan Banks and Miss E. B. Bryant for the use of their specimens and constant help of all kinds.

For references to publications of New England Spiders, the reader is referred to Miss Bryant's list of New England Spiders lately published by the Boston Society of Natural History.

Among the *Epeiridæ, Zilla atrica* is the only additional species found since the publication of New England Epeiridæ in 1884, but the males of the following species are described: *E. corticaria E. Nordmanni, E. juniperi, E. thaddeus.*

The separation of the *Theridiidæ* and *Linyphiadæ* as two distinct families seems to me an improvement, and I have adopted it in this paper, but not the union of the *Linyphiadæ* and *Epeiridæ* into one family, which obscures the marked differences between these two groups. Between certain genera of these families the family differences are hard to define, but the same is true of the differences between genera of the *Theridiidæ* and *Linyphiadæ.*

The *Linyphiadæ* are divided naturally into two subfamilies—*Linyphieæ* and *Erigoneæ*, the former containing the larger long-legged forms, and the latter the smaller forms with short legs and short spines. The genus *Microneta* in the *Linyphieæ* resembles in its form the *Erigoneæ*, and its species are hard to distinguish from those of *Tmeticus.* The most typical species are *viaria, cornupalpis* and *discolor. Microneta* (Bathyphantes) *bihamatus* belongs to this genus rather than *Bathyphantes.* Two new species are described and new specimens have been examined of all the old species except *crassimanus, furcata, longibulbus* and *olivacea.*

In the *Linyphieæ* the principal additions are *Linyphia maculata*, which has been found sparingly in many different localities and described by Banks as *L. conferta Hentz*, and *Tapinopa bilineata Banks*, which has been found singly in several localities.

In the *Erigoneæ* more than in any other group, new species are frequently found, and our descriptions are often made from one or a few individuals. They live for the most part near the ground, hidden in moss and leaves, only small quantities of which can be closely examined, and so little is known about their species and distribution. In their classification they offer many difficulties. Their small size makes their comparison inconvenient, and their uniformity in form and color makes it hard to define their differences. The only characters easy to see and describe are those of the adult males—the organs on the ends of the palpi and the modifications of the head. In consequence of these difficulties, the published classifications consist of a number of ill-defined genera, which have been formed from time to time, as new species were discovered, and the relations of which among themselves have never been satisfactorily explained. In the New England Theridiidæ I used a classification based upon the genera of Menge in the Spiders of Prussia, and in the present paper follow substantially the same, be-

cause it seems to me to show as well as any other the natural relations of the species which I have been studying.

At the beginning of the series come two species which I have described in N. E. Theridiidae under the name of *Pholcomma* at the end of the *Theridiidæ*. *P. hirsuta* belongs to a genus near *Pholcomma*, which Simon in Hist. Nat. Araignées has named *Ancyllorhanis*. It has small mandibles and the pointed maxillæ and the simple male palpi of the *Theridiidæ*. *P. rostrata* belongs to quite a different genus, which Simon has called *Histagonia*, and I have adopted without having seen *H. deserticola*, the type species Another species of the same genus is the *Exechophysis palustris Banks*. *Histagonia* seems to me most nearly related to *Diplocephalus* rather than to *Pholcomma*. The mandibles and maxillæ are like the *Erigoneæ* rather than the *Theridiidæ*, and the modifications of the head and complicated form of the tibia of the male palpi resemble those of *Diplocephalus*. The tarsal hook is present, though small, as it is in *Diplocephalus*.

The new genus *Caseola* with two species *herbicola* and *alticeps* resembles in form and habits *Ceratinella*, but does not have hard pieces on the back and at the base of the abdomen, nor any of the orange color of *Ceratinella*. The male palpi are simple in both species, with a peculiar club-shaped process of the palpal organ directed toward the inner side.

Ceratinella consists of small round spiders, orange-colored or orange brown, with a hard plate on the back of the abdomen in one sex or both. The palpi of the males vary in length, but are all on the same plan, with the palpal organ furnished with a long slender tube turned backward from the distal end of the tarsus toward the base. I consider this genus to include the European *C. brevis* and the American species which Simon separates as the genus *Ceraticelus*, the principal difference being in the sinuous claw of the mandible of *C. brevis*. *Ceratinopsis* consists also of small and brightly colored spiders with usually distinct black markings on the head and sometimes on the palpi and feet. The palpi resemble those of *Ceratinella*, with large and more variable tibiæ. There are no hard plates on the abdomen.

Cornicularia includes species resembling *Ceratinopsis*, but with usually more elongated cephalothorax, and in the males a horn on the front of the head between the upper and lower middle eyes. The male palpi have the tibia enlarged and extended over the back of the tarsus in a long flat process, partly divided into two branches. I include those species which have a double horn on the head,

which Simon refers to *Prosopotheca*, and also, as suggested by Simon, *Spiropalpus spiralis* which, though its male has no horns, resembles this genus.

Grammonata includes, besides the three species before described, *Erigonoplus gigas Banks*, which has lately been found in Massachusetts. All the species resemble *Amaurobius* in form and markings, having an indistinct pattern of light spots on the abdomen. In the males the head is a little elevated behind the eyes, and in *pictilis* and *gigas* there is a conspicuous hump. The males of *gigas* have the first metatarsus white and much thicker than the other joints. The male palpi resemble those of *Ceratinella*, having a long tube turned abruptly backward from the end of the tarsus. In *pictilis* the tube is very long and coiled in a double spiral.

Diplocephalus Bertkau, 1883, is *Lophomma* Em. of N. E. Theridiadæ, in which the males have two humps on the head, each carrying one pair of the middle eyes. The male palpi have the tibia very large, covering the back of the tarsus nearly its whole length.

Lophocarenum consists of those spiders, the males of which, except *rugosum*, have holes in the head behind the eyes, and the middle of the head elevated, sometimes into large humps. The male palpi have the patella longer than the tibia, and the latter usually longer than wide, with small hooks and processes of various shapes. Where the enlargement of the head of the male is extreme, the female has a slight elevation of the head as in *montiferum* and *alpinum*. The unusually large size of the front lateral eyes in *quadricristatum* occurs in a less degree in the female.

There is no better example of the difficulty of classifying the *Erigoneæ* than the attempt of Simon to distribute the American species of this genus, without seeing the spiders themselves, among eight different genera. For *florens* he makes a new genus *Hypselistes*, while *decemoculatum*, the females of which cannot be distinguished from those of *florens*, is placed in *Neriene*, which corresponds in part to my *Tmeticus*. *L. pallidum* and *L. longitubus*, which resemble each other as closely as any other two species, are placed one in *Typhocræstes* and the other in *Pocodicnemis*. *L. scopuliferum* is placed in *Minyriolus*, *L. quadricristatum* in *Panamomops*, *L. longitarsus* in *Lophomma*, *L.* rostratum in *Trachelocamptus* and *L. decemoculatum*, *montiferum* and *spiniferum* in *Neriene*. I see no reason to follow any of these changes; they only obscure the relations of the spiders.

Tmeticus is still a heterogeneous group. The more typical species,

such as *probatus* and *trilobatus*, approach *Erigone* by their wide maxillæ and long palpi and the tibia widened toward the tarsus, and the males have a strong single spine on the front of the mandibles. *Maximus*, *tibialis* and *brunneus* resemble each other in size and proportions, but differ in their mandibles and palpi. The other species have little in common except their general size and color, arrangement of eyes and form of mandibles and maxillæ.

Erigone now includes four species; *longipalpis*, *dentigera*, *autumnalis* and the new *brevidentatus* with wide maxillæ, large mandibles and long male palpi with widened tibia, and a spur directed downward on the patella.

In the *Theridiidæ* there are but few additions. *Theridium kentuckyense* has been found in a few places. The male of *T. zelotypum* is described and the species found to be common in Maine and New Hampshire. *Latrodectus mactans* has been found in several localities, but is nowhere common. The new *Enoplognatha rugosa* has been found rarely but in localities far apart. The same is true of the new *Pedanostethus pumilus*, and *P. spiniferus*.

In the *Agalenidæ*, *Hahnia brunnea* is described from a single specimen, but there is a second one in the collection of Mr. Banks. *Cryphœca montana* appears to be common in northern New Hampshire, and from description is very near the *C. peckhamii* Simon of the Pacific coast.

The larger *Clubionas* have been better defined and new figures are given of the epigynum of several species. The two new species are one from a single specimen *C. spiralis* and the other *C. prematura* a common species from the summit of Mt. Washington, the female of which has long been known as a variety of *C. ornata* Em.

The North American *Lycosidæ* and *Pisauridæ* have been described and their classification much improved by T. H. Montgomery in Proceedings of Philadelphia Acad., 1902–3 and 4. *Lycosa relucens* Montg. is a common species in New England. *Dolomedes idoneus* Montg. and *D. fontanus Em.* have both been described as *D. tenebrosus* Hentz, which agrees equally well with either. The new *D. vernalis* appears to be common in Maine and New Hampshire. *Pirata* remains a difficult group and each author has his own species. *P. minuta* is the most distinct, *montana* and *insularis* have been again identified and three new species are described. In N. E. Lycosidae 1885 I have described under the name of *L. nidifex* what I now consider as two species named by Marx in the Am. Naturalist, 1881. *L. nidifex* and *L. Pikei*. *Nidifex* is the inland species which ordinarily makes a ring or turret at the mouth of its burrow; *Pikei*

is the seashore and sand dune species described by Scudder as *L. arenicola* in Psyche 1877. *L. avara* Keys, *L. baltimoriana* Keys, and *Pardosa littoralis* Banks been have found in New England and new figures and descriptions of them are given.

Since the publication of N. E. Attidae in 1891 the number of species of that family known in New England has been largely increased, but nearly all the species have been described from other parts of the country and appear to have very wide distribution. Some of the most common species are so variable and their differences so hard to define that they are still very imperfectly known, especially in *Phidippus* and *Dendryphantes*. The *Icius* which I described as a dark variety of *elegans* now appears to be a distinct species, *Icius similis*, Bks.

Dendryphantes flavipes Pkm. has been found in small numbers through Maine and New Hampshire. The male is fairly distinct from that of *capitatus* but I cannot distinguish the females. A new species *D. Jeffersoni* is described from very few specimens found on the Mt. Washington range at an elevation of 5,000 feet living in the moss and lichens.

List of New Species.

Enoplognatha rugosa.
Pedanostethus pumilus.
„ *spiniferus.*
Ceratinopsis auriculatus.
„ *alternatus.*
Caseola herbicola.
„ *alticeps.*
Lophocarenum cuneatum.
„ *abruptum.*
„ *minutum.*
„ *rugosum.*
Erigone brevidentatus.
Linyphia maculata.
Bathyphantes calcaratus.
Micronetа denticulata.
„ *serrata.*
Lycosa crassipalpis.
Pardosa diffusa.
Pirata arenicola.
„ *maculata.*
„ *sylvestris.*
Dolomedes vernalis.
Amaurobius borealis.
Micaria laticeps.
„ *quinquenotata.*
Castaneira lineata.
Drassus hiemalis.
„ *bicornis.*
Clubiona spiralis.
„ *prematura.*
Apostenus acutus.
Cryphœca montana.
Hahnia brunnea.
Phidippus Whitmani.
Dendryphantes Jeffersoni.

List of described species found in New England since 1882–1892.

Latrodectus mactans.
Theridium kentuckyense Keys.
Pedanostethus riparius Keys.
Ceratinella formosa Banks.
Grammonota gigas Banks.
Histagonia (Exechophysis) palustris Banks.
Lophocarenum (Dismodicus) alpinum Banks.
„ *(Dicyphus) trilobatus Banks.*
Tmeticus flaveolus Banks.
„ *debilis Banks.*
Tapinopa bilineata Banks.
Zilla atrica Koch.
Pachygnatha tristriata Keys.
Lycosa avara Keys.
Lycosa baltimoreana Keys.
„ *Pikei Marx.*
„ *relucens Montgomery.*
Pardosa littoralis Banks.
Dolomedes idoneus Montgomery.
Dolomedes urinator (Hentz) Montgomery.
Œcobius (Thalamia) parietalis (Hentz).
Scotolathys (neophanes) pallidus Marx.
Orchestina saltitans Banks.
Micaria gentilis Banks.
Prosthesima rufula Banks.
Gnaphosa parvula Banks.
Cicurina pallida Keys.
Phidippus insignarius Koch.
Dendryphantes flavipes Pkm.
Icius similis Banks.
Hyctia Pikei Pkm.
Mævia tibialis Koch.
Pellenes (attus) viridipes Hentz.
„ *(attus) roseus Hentz.*
„ *agilis Banks.*
„ *borealis Banks.*
Homalattus cyaneus Pkm.
Peckhamia (Synemosyna) scorpionea Hentz.

Theridium differens, Em. Trans. Conn. Acad. 1892. (Plate I, figure 7.)

The epigynum of this species is wrongly described and figured in N. E. Theridiidae. The openings are really on the outer side, as they are in *Theridium spirale*, and differ only in being a little smaller and farther apart. See fig. 7.

Theridium zelotypum, Em. Trans. Conn. Acad. 1892. (Plate I, figure 5.)

This species has been found in the White Mountains and all over Maine, as far north as Moosehead Lake, but not south of Portland, Me., and westward as far as Winnipeg, Manitoba. At Monhegan, Me., July 1, 1901 adult males were abundant in webs with the females under spruce branches. The males are as large as the females, and have the abdomen similarly marked. The cephalothorax, legs and palpi are bright orange color, and the legs only slightly darker at the ends of the joints. The dark middle stripe of the cephalothorax is usually shorter than in the female, and does not extend forward to the eyes. The male palpus resembles that of *murarium* with all the appendages more elongated, Pl. 1, fig. 5. At pairing time the webs do not contain the characteristic tents covered with spruce leaves and scales; these are made later and in the last of July and first of August are found in nearly all the webs, hiding the females and eggs. The females remain in the nests with the young as late as September.

Theridium kentuckyense, Keys. Spinnen Amerikas, 1884. (Plate I, figures 6, 6a.)

The same size and general form as *differens* and *murarium*. The colors are less bright than in those species and more like *T. tepidariorum*. The legs are pale, with light yellowbrown, wide rings at the ends of the joints, and less distinctly in the middle. The cephalothorax is brown, darker at the sides, and lightest between the eyes and the dorsal groove, without any stripes. The sternum is brown, without markings, and the coxæ and base of the femora pale.

The markings of the abdomen are distinct at the anterior end and also over the spinnerets, while in the middle they consist of small and indistinct spots in irregular transverse rows extending down the sides. At the anterior end is a bright white spot with a larger black spot on each side sharply defined toward the middle line, and irregular and indistinct at the sides. At the hinder end over the spinnerets is a white spot with short black stripes at the sides. On each side of the abdomen is a short, dark, vertical stripe that in some individuals is deep black.

In the male the markings of the abdomen unite into a more distinct middle light stripe, bordered by two dark ones, but the white spots at the ends are distinct as in the female.

The epigynum is small and rounded behind with two openings twice their diameter apart. The skin is so transparent that the tubes of the epigynum are seen through it and obscure the openings.

At the end of the palpal organ is a long thin appendage, widened and twisted at the end, partly enclosing and supporting the tube. Pl. 1, fig. 6a.

Found at New Haven, Conn., Jaffrey, N. H., and by Dr. Fox at Hollis, N. H.

Latrodectus mactans, Fabr.
Theridion verecundum, Hentz.

This is the largest and most conspicuous species of the family. The abdomen is round, sometimes a centimeter in diameter, and the whole body is deep black except a bright red spot under the abdomen and one or a row of red spots on the upper side. In alcohol the spots fade to white or yellow. In young individuals there is a white line around the front of the abdomen and three rows of spots partly white and partly red along the back, and the legs are brown in the middle of the joints and black at the ends. The adult males are marked much like the young with the lateral spots elongated and with a red line in the middle of each. The males are much smaller than the females, some of them only three or four millimeters long but with long legs. The lateral eyes, which in most Theridiidae are close together, are in *Latrodectus* as far apart as they are from the middle eyes. The epigynum is of the usual Theridion pattern with a single, wide, oval opening partly divided on the front edge. The palpal organ has a very large and long tube coiled in two flat turns across the end of the bulb. In alcohol this tube often becomes displaced and coils around the bulb in any direction.

The nest is usually near the ground under a stone or in a hole in the sod. The web extends among surrounding objects sometimes for a foot from the nest in all directions. It consists mainly of large irregular meshes, but includes usually a distinct flat or curved sheet of smaller meshes like the webs of *Steatoda* or *Pholcus*. The cocoons are half on inch in diameter brownish white in color.

This species is found all over the country as far west as the Rocky Mountains and north to southern New Hampshire. In the South it is common, but in New England occurs only occasionally in scattered localities.

Enoplognatha rugosa, new. (Plate I, figures 8 to 8c.)

Two males sifted from leaves in a swamp in the Blue Hills, May 6, 1905, are about half as large as *marmorata*, measuring 3.5 mm. in length. The cephalothorax is flat and the head wide and low as it is in *marmorata*, but the legs are longer and more slender. The sternum is widest in front, and less indented around the coxæ than in *marmorata*. The mandibles are more slender than in *marmorata*, and the claw is slender and nearly as long as the basal joint. The process on the under side is near the middle, and has a single pointed tip and below it two small teeth, Pl. I, fig. 8c. The legs and mandibles are slightly roughened by little elevations at the bases of the hairs, which are shorter and fewer than in *marmorata*. There are similar elevations on the middle of the cephalothorax and around the edges of maxillæ and sternum. The palpi resemble those of *marmorata*. The color in the specimens examined is pale and less yellow than in *marmorata*, in alcohol inclining to red as in *Steatoda triangulosa*. The abdomen has an indistinct pattern consisting of a broken middle line and two rows of spots.

The female found May 30, 1906, under leaves at Three-mile Island, Lake Winnipesaukee, N. H., resembles the males in color and markings and in size. The abdomen is larger, and the legs and mandibles short as in females of related species. The head, sternum and mouth parts are less roughened, but have longer hairs than in the male. The epigynum has a transverse narrow opening behind, covered by a short brown plate.

Pedanostethus riparius, Keysl. Spinnen Amerikas, Theridiidae, 1886. (Plate I, figures 1 to 1d.)

This species described by Keyserling from Lake Superior, is one of the most common spiders under leaves all over New England.

The length is about 4 mm., the sexes differing little in size. The cephalothorax and abdomen are about equal in length. The cephalothorax is wide in front; about two-thirds as wide as it is at the widest part, and the rows of eyes are almost straight, the upper row only slightly longer than the lower. The palpi of the female are as long as the cephalothorax, and those of the male longer. The maxillæ have the ends straight and nearly parallel, as in *Enoplognatha marmorata*, not oblique as in *Steatoda borealis*. The sternum is as wide as long, widest between the first and second legs and slightly pointed behind. The colors are dull brown and gray, without any markings. The cephalothorax is smooth and shining and darkened a little toward the head. The legs are brown like the cephalothorax, darkened toward the tips and covered with fine hairs. The abdomen is gray, generally lighter than the cephalothorax, and covered with dark gray hairs. The epigynum has a characteristic pear-shaped piece in front, Pl. 1, fig. 1c, but in some individuals this piece is oblong, Pl. 1, fig. 1d.

The male palpi are stout and three-fourths as long as the rest of the spider. The tibia and patella are both short and together equal in length to the tarsus. The tibia is a little narrowed at the base and widened at the end around the base of the tarsus on the outer side. The tarsus is narrow, only partly covering the palpal organ. Near the tip it has a notch on the upper side, and two curved stiff hairs, Pl. I, fig. 1a.

Pedanostethus pumilus, new. (Plate I, figures 2, 2a.)

In the maple swamp at Clarendon Hills, south of Boston, three males have been found of this small species. It is 2.5 mm. long, colored like very light individuals of *riparius*, and resembling it in every respect except in the palpi. These are proportionally shorter than in *riparius*, being not much longer than the cephalothorax. The tibia is more contracted at the base than in *riparius*, and the tarsus is shorter, rounder and thicker. The notch near the tip is wider and there are no special hairs. The female is the same size and color as the male. The epigynum is short like that of *riparius* but has the front piece wider than long instead of pear shaped fig. 2a.

One male also found near the Carter notch, White Mountains, Aug., 1906, and another at Three-mile Island, Lake Winnipesaukee.

Pedanostethus spiniferus, new. (Plate I, figures 3, 3a.)

The male is 2.5 mm. long, and pale like *pumilus*, and resembles it except that the lateral eyes of the upper row are a little farther back. The palpi have the tibia shaped much as in *riparius*, not

as narrow at the base as in *P. pumilus.* The tarsus is oval and less pointed than in *riparius*, with the notch smaller and not as near the tip. At the base of the palpal organ is a long hook turning out at right angle to the tarsus, Pl. I, fig. 13. The female is of the same size as the male. The epigynum is elongated, a third as long as the abdomen. At the front end close behind the fourth coxæ is a small, dark colored, sharp point directed forward a little behind which the round spermathecæ show through the skin, and behind these two parallel dark lines extend backward and meet at the base of a short, pale, blunt appendage directed backward.

This species is found under leaves in company with *riparius* and *pumilus.* Clarendon Hills and Waltham, Mass.

Argyrodes cancellatus. (Plate I, figures 10 to 10c.)
Theridion cancellatum, Hentz.
Lasæola cancellata, Emerton, N. E. Theridiidae. Trans. Conn. Acad. 1882.
Argyrodes larvatus, Keyserling. Spinnen Amerikas.

This species, found in Connecticut, is abundant on Long Island and farther south. It is sometimes found in webs of its own and often in webs of larger spiders, especially in those of *Epeira strix.* The colors are light gray and brown, with silvery spots on the abdomen, and when it is motionless with the feet drawn up, it is hard to distinguish from a piece of leaf or bark dropped by accident into the web.

The female is 2.5 mm. long, with the cephalothorax 1 mm. long. The head is higher, and more vertical in front than in *trigonum* and the front middle eyes project slightly on the front of the head. The lower part of the head is rounded and extends forward a little beyond the mandibles. The abdomen is as high as wide, rounded above and narrowed toward the spinnerets, which are in the middle of the under side. At the end of the abdomen is a double tubercle with the lower half largest, and on each side of the abdomen a little farther forward another tubercle. The epigynum has a wide oval opening, partly covered and divided by a projection of the front edge.

The male is 3 mm. long and the cephalothorax 1.5 mm. The lower part of the front of the head extends forward and downward in front of the mandibles in a nose-shaped process, above which there is a round pit on each side of the head. The abdomen is smaller and narrower than that of the female, and covered above with silvery spots mixed with gray and black. The male palpi are

shorter and have the tarsus larger and rounder than in *trigonum*, Pl. I, fig. 10e. The descriptions and figures are from specimens taken at Cold Spring Harbor on the north side of Long Island, N. Y.

Ceratinella formosa, Banks. Ithaca, 1892. (Plate II, figures 5 to 5d.)

This species was found by Miss E. B. Bryant at Long Island in Portland Harbor, Me., Sept. 11, 1904. It was in great numbers on the stones on the beach and flying by threads in the air. In size and color it resembles *C. læta.* The males have the whole upper surface of the abdomen hard, while the females have only a hard spot across the anterior end. The cephalothorax and abdomen are both longer and less rounded than in *læta,* and the sternum is narrower behind, measuring between the fourth legs one-third its length, while the sternum of *læta* measures half its length. The epigynum has a triangular opening somewhat like that of *læta.* The male palpus resembles that of *C. brunnea*; the process of the tibia is long and hooked, and the tube of the palpal organ is simple, with no tooth at the bend. This species lives among the small stones above high water on the beach, and runs much faster than the other Ceratinellas. Found at Gloucester, Mass. on beaches and one specimen in the Carter notch, White Mountains, N. H.

Ceratinopsis auriculatus, new. (Plate II, figures 9, 9a, 9b.)

1.5 mm. long and much like *C. laticeps.* The colors are yellow and orange like the other species, with a little black on the head and ends of the palpi. The upper middle eyes are more than their diameter apart, and the lateral eyes are farther from them than they are from each other. Each pair of lateral eyes is raised on a little horn turned forward and projecting in a point beyond the eyes. The tibia of the male palpus projects upward and hooks forward. Seen from above it has three indistinct teeth in place of the two long ones of *C. laticeps.*

One male from Three-mile Island, Lake Winnipesaukee, N. H., May 29, 1906, Miss E. B. Bryant; one from Fitzwilliam, July 1907.

Ceratinopsis alternatus, new. (Plate II, figures 6, 6a.)

In general appearance this resembles the female *C. interpres.* The length is 2.5 mm. and the color is light orange brown with black between the eyes, but no other markings. The arrangement of the eyes is the same as in *interpres,* but the head is not quite as high and the back not as straight. The sternum is convex and large, and as wide as long, extending between the fourth coxæ as wide as the coxæ are long.

The epigynum is simple, with a middle lobe a little longer than wide.

The male palpi have the patella long and widened at the end, with a large tooth on the under sider. The tibia is very short and has a tooth on the upper side as long as that on the patella but more slender. The palpal organ has a slender pointed process at the end, and a short and flat basal hook, Pl. II, fig. 6.

Three-mile Island and Jaffrey, N. H., Mt. Tom, Mass., Simsbury, Conn., Balsam, North Carolina.

Caseola, new genus.

General appearance like *Ceratinella*, but without any hard plate on the abdomen. The cephalothorax is as wide as long, in the male *alticeps*, elevated in front. The two rows of eyes are of equal length the upper middle pair as far from the front middle pair as they are from each other. The abdomen is oval, not much larger than the cephalothorax and covered with scattered hairs. The legs are short and differ little in length. The mandibles have three very small teeth on the inner side of the claw groove and two or three larger ones on the front. The maxillæ are longer than wide and a little pointed at the inner corners. The sternum is as wide as long, widest between the first and second legs and extends backward between the fourth legs, where it is as wide as the coxæ. The male palpi have the patella and tibia both short and the palpal organ simple with a slender curved tube, at the base of which is a flat process widened and oval at the end directed outward.

Caseola herbicola, new. (Plate II, figures 1 to 1d.)

1.5 mm. long and resembling *Ceratinella*, but without any hard spots on the abdomen, which is covered with scattered stiff hairs. The color is pale and whitish, without the orange which is usual in *Ceratinella*. The cephalothorax is darkened a little toward the head, and in the male is browner than in the female. The cephalothorax is nearly as wide as long, very little narrowed or raised toward the head in either sex. There is nothing peculiar in the arrangement of the eyes. The front middle pair are as usual smallest and about two-thirds the diameter of the upper middle eyes, with which they make a quadrangle slightly higher than wide. The front row of eyes is almost as long as the upper row, with the lateral eyes a little raised above the head. The mandibles have four or five very small teeth each side of the claw. The sternum

is as wide as long, and extends backward between the fourth coxæ, as wide as the coxæ themselves. The epigynum has a wide transparent lobe in the middle, at each side of which the brown spermathecæ show through the skin, and from which two dark bands curve in half circles toward the middle.

The male palpi are simple with a slender tube curving forward toward a small terminal process with two teeth. Near the base of the tube there is a small dark tooth, and under it, directed toward the inner side, is a pale club-shaped process. The tarsal hook is very small and hard to see. The tibia is widened at the end with no processes or branches, except a slight raised and straight edge on the upper side.

The females have been found in small numbers at several places near Boston under leaves in early spring. Adult males and several females were swept from low plants on Mt. Holyoke, Mass., on June 20th.

Caseola alticeps, new. (Plate II, figures 2 to 2e.)

1.5 mm. long with the general appearance of *Lophocarenum* rather than *Ceratinella.* The males only are known, and they have the head narrow and elevated, somewhat as in *Ceratinopsis interpres.* The eyes are all on the elevation and so are closer together than in *herbicola.* The front middle eyes are only a little smaller than the upper middle pair. The cephalothorax is nearly as wide as long. The abdomen is oval and covered with scattered hairs, which are finer and more numerous than in *herbicola.*

The male palpi have the tibia widened up and down with a tooth on the outer side. The palpal organ is simple, having on the inner side a club-shaped appendage like *herbicola.* The tube ends between two processes at the tip of the organ, one flat and transparent, and the other short and fine, with a peculiar curve at the end. The tarsal hook is very small and easily concealed.

One from Three-mile Island in May, dark colored, and one from Waltham, Mass. in November, which is pale.

Grammonota gigas. (Plate II, figures 8 to 8b.)

Erigonoplus gigas, Banks. Canadian Entomologist. 1896.

Two males of this species were found under a board at Ipswich Bluff, Plum Island, Mass. by Miss Mary T. Palmer, June, 1906. They are 2.5 mm. long and resemble in size and color *G. pictilis.* There are markings on the back of the abdomen as in *pictilis,* but the front half is stained with yellow over the other markings. The

front legs have the metatarsus white and twice as thick as the other joints. The end of the tibia is also slightly thickened. The two middle pairs of eyes are nearly as far apart as the lateral pairs, and the head is slightly elevated between them, and covered with hairs directed backward and upward as in the other species. Behind the eyes is a large hump rising abruptly in front and divided into five lobes. The male palpi resemble closely those of *G. inornata.* The tibia has, on the upper side, a large, simple hook turned forward, and the tube of the palpal organ is short and stiff and turned backward at the tip. This was first found by Banks at Ithaca, N. Y. and described by him in 1896.

Another male was found at Fitzwilliam, N. H., July, 1807, in the rhododendron woods.

Histagonia palustris,

Exechophysis palustris, Banks. Ent. Soc., Wash., 1905. (Plate II, figures 4 to 4f.)

This is another species resembling the *Pholcomma rostrata* described in 1882. It is a little over 1 mm. long, short and rounded like *rostrata,* with the abdomen of the male hard on the back and covered with scattered stiff hairs. The head is elevated and extends forward below the eyes in a blunt protuberance, covered on the end with stiff hairs directed upward and backward.

The male palpi have the tube of the palpal organ coiled once around the end of the bulb. The tibia is flattened and, seen from the side, as wide as long, with a recurved black spine on the distal corner, and a smaller black spine near the basal end, the edge between the two spines irregular and cut into several notches. Seen from above with the palpi in their usual position, the tibia is wedge-shaped with the point directed forward. On the outer side of the tibia near the upper edge are two long hairs, which appear to correspond to the two hairs on the tibia of rostrata.

Three-mile Island, Lake Winnipesaukee, N. H., May 25, 1905. Sifted from leaves. Ithaca, N. Y., N. Banks.

Lophocarenum cuneatum, new. (Plate III, figures 6 to 6c.)

2 mm. long, the cephalothorax dark brown, the abdomen as dark but grayer in color, and the legs distinctly lighter, pale when freshly molted, and light yellow when mature. The cephalothorax is nearly as wide as long, extended in front under the eyes in a blunt point. The head is elevated into a distinct hump, with long oval grooves at the sides, in the front ends of which, close to the

eyes are the lateral pits. The upper middle eyes are on the front and nearly at the top of the hump, the lower middle eyes half way between them and the mandibles. The lateral eyes are wide apart, just outside the lateral grooves, each pair on a slight elevation. The hairs between the eyes are long and pointed outward. The male palpi have the patella nearly twice as long as wide. The tibia is very much widened toward the tarsus and partly covers it on the upper side, where it has a large sickle-shaped hook turned outward. The tarsal hook is flat and broad, with a small notch. The tarsus is short and rounded and the parts of the palpal organ small, with a short tube curved around the end.

A single freshly molted female has the head slightly elevated behind the eyes, and the middle eyes as far from the front pair as they are from each other. The epigynum is very far forward, and has two pointed lobes directed backward and close together with only a narrow groove between them.

Fitzwilliam, N. H. under leaves near the rhododendrons, May 25, 1907.

Lophocarenum abruptum, new. (Plate III, figures 5 to 5c.)

A male a little over 2 mm. long from under leaves on Mt. Holyoke, Mass., June 20. The cephalothorax is depressed in the middle, and the head rises abruptly, carrying the upper middle eyes on the front and upper side. Just above the lateral eyes are wide grooves, with a small round pit a little farther back than the lateral eyes. Between the upper and lower middle eyes are a few fine hairs turned toward the sides. Below the front middle eyes the head projects forward over the mandibles. The tarsus of the male palpus is about half as long as the patella and widened toward the tarsus, and has on the upper side two processes directed forward, the inner one twice as long as the outer and as long as the body of the tibia. The tarsus is rounded and the palpal organ large and thick from above downward. The tube is small and coiled in one turn on the outer side. The colors in this individual are pale, the abdomen darkest.

Lophocarenum quadricristatum. (Plate III, figures 4, 4a.)

This has been found again on the summit of Mt. Washington in August, 1906. The female has in a less degree the same peculiar arrangement of the eyes as the male. The middle pairs are unusually far apart, and the lateral pairs have the front eye one and

a half times as large as the other. The head is a little elevated, highest just behind the upper middle eyes. The epigynum is very simple, showing a straight edge behind, with a wide middle lobe separated only by slight grooves. The sternum in both sexes extends backward between the fourth coxæ, where it is wider than the diameter of the coxæ.

Lophocarenum alpinum, Banks.

Dismodicus alpinus, Banks. Can. Ent., 1896. (Plate III, figures 3 to 3f.)

An adult male and female were found in a thin web under a stone near the summit of Mt. Washington, N. H., and another female and a male not yet molted for the last time under other stones in the same neighborhood. The male is 2 mm. long. The cephalothorax is half longer than wide, narrow in front and extended a little beyond the mandibles. The hump is rounded above and rises between the eyes and the middle of the cephalothorax; it is nearly as wide as the front of the head, and inclines forward a little over the eyes. The front of the hump is covered with short hairs, longest below and turned outward toward each side. On each side of the hump at the level of the eyes is a groove with a round pit at the front end. The eyes are spread over the whole width of the head, the lateral pairs largest, the front middle pair very small and near together. The eyes of the upper row are equal distances apart. The palpi are longer than the cephalothorax. The tibia is shorter than the patella, and extended only a little over the upper side of the tarsus, where it is divided into two teeth, the inner one longest but slender and hooked inward at the end. The palpal organ resembles that of the last species and of *L. montiferum.*

A young male almost ready for the final moult, shows a small hump behind the eyes and a slight extension of the front of the head. The palpi are much enlarged, and show the form of the male tibia and palpal organ indistinctly through the skin.

In the female which is about the same size as the male, the front of the head is not extended forward, but there is a slight hump one-fourth as high as that of the male, in the same place between the eyes and the middle of the cephalothorax. The epigynum has a wide middle lobe curved on the edge and shows through the skin the spermathecæ and two irregularly coiled tubes at the sides of the middle lobe.

Lophocarenum trilobatum. (Plate III, figures 1, 1a.)
Dicyphus trilobatus, Banks. Canadian Entomologist, 1896.

One male only from the maple swamp at Clarendon Hills, about the same size as *L. montiferum*, with a hump as high as that species, but differently shaped. The cephalothorax is not quite as wide as long, and a little narrower in front. The eyes are grouped together as in most species, the hinder middle pair a little farther apart than they are from the lateral and the lateral pairs almost horizontal. The hump is half as wide as the cephalothorax and nearly of the same height. It is rounded behind and in front divided into three lobes, the middle one extending forward nearly to the eyes. The palpi are longer than the cephalothorax, the tibia a little shorter than the patella, but elongated over the tarsus on the upper side, so that it appears longer. This process of the tibia is divided into two teeth, the outer one longer and larger than the inner. The palpal organ has some resemblance to that of *montiferum*, with a small tarsal hook and the tube curled once around the end.

Lophocarenum minutum, new. (Plate III, figures 8, 8a, 8b.)

1 mm. long and light yellow brown. The cephalothorax is one-fourth longer than wide and rounded in front. The head is only slightly elevated, and the lateral grooves are behind the eyes, with the pits showing from above through the skin one-third the length of the cephalothorax from the front. The sternum is as broad as long, extending backward between the fourth legs, where it is as wide as one of the coxæ. The palpi have the patella and tibia both short, about as wide as long. The tibia is a little widened toward the tarsus and has on the upper and outer side a short, fine and slightly curved tooth. The tarsal hook is long and slender, and in my specimens turns outward so that it shows from above. The palpal organ is small and simple, and there is a short and blunt black process that extends beyond the end of the tarsus. The tarsus is slightly angular on the outer side. The female has the head slightly lower, with the upper and lower middle eyes closer together. The epigynum resembles that of several other species of the genus having a distinct middle lobe, widened at the end in front of which are two openings.

Fitzwilliam, N. H. under leaves near the rhododendrons, May 25, 1907.

Lophocarenum rugosum, new. (Plate II, figures 3 to 3g.)

2 mm. long. The cephalothorax is oval, widest across the middle and highest behind the eyes. The surface is slightly roughened all

over. The sternum is also rough. It extends backward between the fourth legs, where it is wider than the coxæ. It extends also between the first and second, and between the second and third legs. The maxillæ are wider than long, and the mandibles stout, with four teeth on the front of the claw, and three small and one large one on the inner side. The eyes spread across the whole front of the head. The front row is straight, with the middle pair smallest, and the middle quadrangle is higher than wide. The abdomen is round and a little pointed at the spinnerets as in Erigone. The abdomen is covered with short and fine scattered hairs. The coxæ are long, extending beyond the border of cephalothorax, so that all are visible from above, and the legs are long and stout and covered with coarse hairs.

The epigynum is very far forward and has a light colored middle lobe, longer than wide, at the sides of which the spermathecæ show through the skin.

The palpal organs are very simple; the tube and two short appendages showing only at the distal end. The tarsal hook is small and the tarsus short and round. The tibia is widened a little across the middle, and has a flat extension with a straight edge against the upper side of the tarsus.

The relations of this species are doubtful as the male does not have the grooves and pits in the sides of the head which are characteristic of the males of most species of this genus. In other respects, however, its resemblance is close to *L. latum* and *L. crenatum* and still more to an undescribed species from Long Island, N. Y., for which the females are easily mistaken. The sternum in all of these is wide and convex and roughened all over the surface. The extension between the legs occurs in the same way in *L. crenatum.* The form of the epigynum is the same in all four species. The resemblance of the male palpi is equally close, all the species having the tarsus nearly of the same shape and the parts of the palpal organ small and with only slight variations among the species.

Grafton, Mass. Three-mile Island, Lake Winnipesaukee, N. H. under leaves.

Tmeticus longisetosus, Emerton. Trans. Conn. Acad. 1892. (Plate IV, figure 9.)

This species has been found again in March, 1907, under leaves in Allston, near Boston. The male and female are of the same size and much alike. They are pale in color, the legs and cephalo-

thorax light yellow tinged, when fresh, with light red on the head and mandibles. There is a row of four or five hairs directed forward on the middle line of the head. The abdomen is covered above and below with scattered hairs about their length apart. The mandibles of the male have a strong tooth in front. The sternum extends backward between the fourth coxæ and is truncated at the hinder end, where it is about half as wide as the fourth coxa. The epigynum appears very simple externally, showing two small spermathecæ through the skin, over which the short scattered hairs are arranged in two clusters. The male palpi have been sufficiently figured in N. E. Theridiidæ.

Tmeticus flaveolus, Banks. Proc. Acad. Nat. Sci. Phila., 1892. (Plate IV, figures 8, 8a, 8b.)

This species resembles *T. longisetosus* in size and color. It is 1.5 mm, long. When fresh the cephalothorax is light orange color and the rest of the body pale. The sternum extends backward beyond the fourth coxæ, where it is as wide as one of the coxae. The mandibles of the male have a small spine on the front near the end. The epigynum is much like that of *longisetosus*, with a transverse slit with the spermathecæ showing through the skin. The male palpus resembles that of *longisetosus*, but the tibia and tarsus are both slightly shorter. The tibia is widened at the end as it is in *longitarsus*, with several projections and shallow curves on the edge. The tarsus has two large spines near the base, one much thicker than the other and both about half as long as the corresponding spines in *longisetosus*.

Coffin's beach, Gloucester, Mass., in straw on the shore. Hanover, N. H. and Ithaca, N. Y. in Mr. Banks' collection.

Tmeticus debilis, Banks. Proc. Acad. Nat. Sci. Phila., 1902. (Plate IV, figures 3, 3a, 3b.)

2 mm. long, and pale yellow, brown and gray, with some individuals almost white. The group of eyes is rather narrow, not more than half the width of the thorax. The sternum is widest at the second legs, and extends between the fourth coxæ in a narrow piece not more than half the diameter of one of the coxæ. The male palpi are large and the palpal organs of a very distinct form. The tibia is small, but widened at the end, where it is about twice as wide as at the base. The tarsus is long and oval, with a smooth strip without hairs near the outer edge. The tarsal hook is slender and has a short rounded process near the base on the outer side.

All the appendages of the palpal organ are long and slender. The tube itself starts at the base under the tarsal hook and extends more than half around the tarsus, and is supported through nearly its whole length by a stouter process with a long hook at the end, usually dark-colored and having a short tooth near its base on the inner side of its curve. At the base of this stout process is another about half as long; which is soft and white and ends in a blunt point near the tip of the tube.

Hammond's Pond woods, Brookline, Carlisle Pines.

Tmeticus corticarius, new. (Plate VI, figures 4, 4a, 4b.)

This species had only been found singly in Cambridge and in New Haven, Conn., until trees around Boston and Providence were banded with cloths to trap the Gypsy moth caterpillars in 1905. It then appeared in considerable numbers under these cloths in both places from July until October.

The length is 2.5 mm., the males and females being of the same size, the males having only slightly longer legs and smaller abdomen. The color is dull gray, the legs and cephalothorax yellowish, and the abdomen almost black. The front of the head is narrow and rounded, and the eyes not far apart. The epigynum is three-lobed, the outer lobes forming part of a semicircular plate a third as wide as the abdomen. The male palpus has the tibia very short and extended upward and downward. The upper process is very conspicuous when the palpus is seen from the side. It is half as long as the tarsus, and curves slightly forward so as to fit the tarsus if both are brought together.

Tmeticus brunneus, Em. Trans. Conn. Acad. 1882. (Plate IV, figures 7, 7a, 7b.)

This has been found again on Mt. Washington by Mrs. Slosson, and is in Mr. Banks's collection. It is closely related to *T. tarsalis* and *T. maximus,* especially the latter; the upper projection of the tibia, however, is distinctly more pointed and larger than in *maximus,* and the tarsal hook is longer. The epigynum is also longer and projects more from the surface of the abdomen than in *maximus.*

Erigone brevidentatus, new. (Plate II, figures 10b, 10c.)

A small species not much over 1 mm. in length. The colors are the usual brown and gray, rather pale in all three specimens. The cephalothorax is only a little elevated behind the eyes, and there are no spines around the edge. The mandibles have one long

spine on the inner side and seven on the outer side, the longest one being opposite the one on the inner side. The male palpi have the patella and tibia of nearly the same length. The usual tooth on the under side of the patella is very small and short.

Mt. Holyoke, sifted from leaves June 20, 1906; Fitzwilliam, N. H., July 20, 1907.

Linyphia maculata, new.

Linyphia conferta (Hentz) Banks, 1892. (Plate IV, figures 10 to, 10 g.)

This species is related to *clathrata* and *mandibulata.* The abdomen is high behind as in those species, and sometimes extends backward beyond the spinnerets. The cephalothorax of the female is somewhat shorter and the legs longer than in *clathrata* and *mandibulata.* The hinder middle eyes are farther apart than they are from the lateral eyes. The front middle eyes are small and less than their diameter apart.

The cephalothorax and legs are light orange yellow, the cephalothorax a little darker, and the eyes are surrounded by black. The abdomen is pale in front and marked with several dark spots, the front ones in pairs, which toward the hinder end are sometimes almost black. Around the sides of the abdomen are gray spots and a row of irregular opaque white spots. In the male all the colors are darker, and the abdomen sometimes almost black. The sternum and under side of the abdomen are brown without any markings.

The epigynum is widened toward the hinder end, Pl. IV, fig. 109. The palpi of the males have the tarsi and palpal organs black, the palpal organs large and complicated and resembling those of *L. marginata.*

At the time of publication of the N. E. Theridiidæ I had seen only the young of this species at New Haven, Conn. In 1883 an adult male was found at the same place, and one near Boston in 1890. More lately they have been found to be common near Boston, at Ipswich, in the Blue Hills, and at Sharon, living in webs near the ground like *L. mandibulata* but preferring more shady situations under the trees and bushes along paths through the woods rather than open meadows. The webs are large and nearly flat, but the part on which the spider usually stands is sometimes a little raised by tighter threads from above.

Tapinopa bilineata, Banks. Journal New York Entomological Soc., 1893, p. 128. (Plate XII, figures 8 to 8 f.)

This species has been found twice, at Woods Hole in 1883, and at Clarendon Hills, south of Boston, in 1904, under leaves in winter in a maple swamp, both specimens females. The male was found in 1906 at Portland, Me.

The length is 5 mm. and the length of the cephalothorax 2.5 mm. The cephalothorax is one half longer than wide, and the projecting middle eyes and the black bands narrowing toward the front make it appear longer and more pointed at the head than in the nearly related species. The middle eyes of the front row are as large as those of the upper row, which is unusual in this family, and the four middle eyes form a quadrangle longer than wide and nearly as wide in front as behind. The front middle eyes project forward over the mandibles. The mandibles are wide in front, with long claws and have seven teeth in front, the middle one-half the diameter of the mandible in length. On the under side of the mandibles are five or six shorter teeth, Pl. XII, fig. 8 d.

The abdomen is shaped as in *Linyphia phrygiana* and *Bathyphantes nebulosa,* high in front and low and pointed behind.

The colors are translucent, white and black or dark gray, all becoming yellow in alcohol. The cephalothorax has two wide black bands at the side that cover more than half its surface, leaving a middle light band narrowing behind and toward the front. The dark bands do not quite extend to the sides of the head or much below the eyes in front. The back of the abdomen is marked with a series of pairs of dark spots, in one specimen united on the posterior half, so that half of the back is entirely black. The legs have wide dark bands around the ends and middle of the longer joints. The sternum is gray, darkest at the sides and the coxæ are gray at the outer ends.

The epigynum is curved downward in a half circle and widened at the end, Pl. XII, fig. 8 f. At the base it is as wide as long, with an opening at each side and a thin partition in the middle, Pl. XII, fig. 8 e.

The markings are more distinct, and darker than in the European *longidens,* of which there are specimens from Germany sent by A. Menge of Danzig in the Museum of Zoology at Cambridge.

The male resembles the female, except that the legs are longer, and the top of the head above the eyes more hairy. The male palpus resembles that of *T. longidens*: the tarsus has a long tooth near the base on the upper and inner side which is curved backward, but is not divided at the end into two teeth as it is in *longidens.*

Bathyphantes calcaratus, new. (Plate IV, figures 13, 13a.)

This species has been found at Portland, Maine, Moosehead Lake, and the lower part of Mt. Washington. The largest measures 3 mm. long. All the specimens are distinctly marked with gray, the darker one resembling *Drapetisca socialis.* The legs are long and slender, the femur darker toward the tip, and the tibia and metatarsus dark at the end and in the middle. The cephalothorax has a dark spot in the middle, wide in front and tapering to a line behind. The abdomen is white and gray, the markings of the front half united into a middle stripe with broken edges and two narrow lateral stripes. On the hinder half the markings are in pairs, slightly connected in the middle. The male palpi are as long as the cephalothorax. The patella and tibia are both short, but the tarsus is elongated with a short and sharp spur at the base. The tarsal hook is very large, recurved and widened at the end, where it has a short point above, and a longer one below, as shown in the figure. The tarsal hook resembles that of *Micronetacrassimanus,* a larger and shorter legged spider.

Micronetapersoluta. (Plate IV, figures 11, 11a.)

The old figures in N. E. Theridiidæ do not give a correct idea of the form of the tarsal hook, though they do show its characteristic sinuous lower edge. The tarsal hook is turned outward and thickened at the end, where it has several blunt irregular teeth as shown in the figure. It has been found at several new localities and seems to be a common species.

Micronetadenticulata, new. (Plate IV, figure 14.)

This species resembles closely *M. persoluta* in size and color, and is found in company with it, but is easily distinguished by the palpi, Pl. IV, fig. 14. The tarsal hook is nearly horseshoe shaped and has a thick edge on which are six or moreprominent teeth, those near the base partly united. The parts of the palpal organ are longer and more separate than in *persoluta.* The mandibles are without a prominent tooth on the front.

Micronetalatidens, Emerton. Trans. Conn. Acad., 1892. (Plate IV, figures 12 to 12c.)

The male of this species was described in 1882 from New Haven, Connecticut. Since that time both sexes have been found at several places and in large numbers. It is 2 mm. to 2.5 mm. in length, the females being usually a little smaller than the males. The

general color is gray, paler on the legs, and there is great difference in the depth of color in different individuals. In alcohol the wetting of the hairs makes them paler and more translucent, and they soon become yellow. The abdomen is marked with four longitudinal lighter lines partly broken into spots. There are no markings on the cephalothorax, except a little black around the eyes.

The epigynum is not folded, but extends backward half way to the spinnerets, curved slightly inward toward the body and outward again at the tip, Pl. IV, fig. 12d.

The male palpi have the tibial hook large and wide, turning outward with three teeth on the thickened edge. The base of the tarsus has a slight horn, shorter than in *viaria*. The end of the palpal organ has two small black processes, one twice as long as the other, Pl. IV, fig. 12a, which show from below when the palpi are held in the usual position.

Micronetа serrata. (Plate IV, figures 15, 15a, 15b.)

One male from a fence in Boston, Nov. 20, 1900, during the autumn flight. Length 1.5 mm. The cephalothorax is a third longer than wide, and narrowed toward the front. The eyes cover the whole front of the head and are large for the size of the spider. The front middle eyes are only slightly smaller and closer than the upper middle pair. The cephalothorax is highest in the middle where it is more than half as high as wide. The sternum is large and convex, widest in front, and ending in a blunt point between the fourth coxæ.

The male palpi are very peculiar. The patella is as long as wide; the tibia is twice as long as the patella and a little widened at the end, with a thin projection on the outer upper corner, extending forward and turned a little inward. There is a little ridge on the back of the tarsus parallel to this process. The tarsus has a slight spur at the base. The tarsal hook is slender as in several small *Bathyphantes*. The middle appendage of the palpal organ is larger than in *Micronetа viaria* and has on the outer side a line of short black spines, Pl. IV, fig. 15a.

Epeira angulata, Clerck.
E. silvatica, Em. N. E. Epeiridæ. Trans. Conn. Acad., 1884.
E. solitaria. N. E. Epeiridæ. Trans. Conn. Acad., 1884.
E. nigra. Canadian Spiders. Trans. Conn. Acad., 1894.

Comparison of several specimens from western Canada leads me to think that *silvatica*, *solitaria* and *nigra* are all varieties of *angu-*

lata. In New England this species continues to be rare, but in the Rocky Mountains and in Oregon and California it is common on fences and outside of houses. On the piazza of hotels through the Canadian Rocky Mountains, the males vary in size from that of *solitaria* with the cephalothorax 5 mm. in length, to the smallest *silvatica* only 3.5 mm. The length of the first femur varies in these specimens from 5.5 to 4 mm. Four males from the hotel at Glacier varied among themselves nearly as much. The palpi of the larger specimens resemble *solitaria* and *nigra*, with the tube curved upward at the base and strongly curved toward the end, while in smaller, light-colored individuals, the tube is less curved, lies closer to the bulb and tapers more regularly toward the point, as in the smaller *silvatica*. The shape of the second tibia is the same in all the varieties, the spines being somewhat longer and stouter in larger individuals.

The females vary but little, except in color, most of the western specimens being darker than those from New England. The shape of the epigynum is very uniform, with the finger very long and slender.

In August, 1906, Mrs. Annie Trumbull Slosson found a male on the hotel at the summit of Mt. Washington that resembles very closely the original *E. solitaria* from Massachusetts.

Epeira corticaria, Em. New Engl. Epeiridæ, 1884. (Plate V, figures 3, 3a.)

Mature males and females are found on the lower part of Mt. Washington, N. H., in the early part of August. The females have the finger of the epigynum broken off or shrivelled. The males are marked and colored like the females, except that in the males the dark stripes at the sides of the cephalothorax are wider, and the dark rings of the legs more distinct. The second tibiæ are slightly thickened and curved, and five spines on the upper side and two on the inner side are thickened and dark-colored. There are no spines on the coxæ.

Epeira Nordmanni, Thorell.

A male from The Glen at the base of Mt. Washington, N. H. is 9 mm. long, the cephalothorax 5 mm. The dark stripes at the sides of the cephalothorax are wider and more definite than in the female. The markings of the abdomen are like those of the female, but are less distinct. The second tibiæ are slightly thickened and

curved, and the spines on the upper and inner sides stout and dark-colored. There are no spines on the coxæ.

Epeira thaddeus, Hentz. (Plate V, figures 2, 2a.)

The males I have seen, from Sharon and Waltham, Mass., are a little smaller than females from the same places. The front leg is much elongated, the patella and tibia together being as long as the spider from eyes to spinnerets. The usual little process on the anterior end of the first coxa is lengthened into a spine directed forward about half the diameter of the coxa in length. The second leg is slightly thicker than the first; the tibia is a little curved, and the four spines on the inner side are stouter but not shorter than the others on this joint. The color is pale, without any bright orange on the legs or dark brown around the abdomen common in females. The first and second legs have brown rings at the ends of the joints, while the third and fourth have the dark ends of the joints less strongly marked than in females. The cephalothorax is pale, with a pale gray stripe in the middle. The abdomen does not have the brown band around the sides which is so characteristic of females, and on the back it is marked with pairs of bright yellow spots, the two anterior pairs larger than the others, somewhat as in *E. globosa.* Some females have similar markings on the back of the abdomen.

Epeira juniperi, Em. (Plate V, figures 1, 1a.)

Two males swept from bushes at Ponemah, N. H., were slightly greenish on the abdomen, which is striped with white at the sides and across the front. The rest of the body was pale and yellowish. The ends of the tibiæ of first and second legs were light orange, covering nearly half the joint, but not forming a definite ring. The cephalothorax is nearly as wide as long and 2 mm. in length. The legs are long and slender, the tibia and patella of the first pair measuring 3 mm. The spines of the legs are dark colored and very long, especially on the tibial joints; those on the first tibiæ being half as long as the whole tibia. There are no modifications of the second tibia.

Epeira labyrinthea, Hentz.

Hentz, in his description of this species, says that a tube, similar to that of Agalena, leads from the web to the nest. I have never seen such a tube; but often there are several threads, as in *Zilla atrica,* leading from the center of the round web to the nest, and

the center is drawn tight by them, giving the appearance of a funnel-shaped opening to a tube. There is, however, no hole in the center of the web, and the cluster of threads may be flat or slightly depressed in the form of a gutter.

Zilla montana. (Plate V, figure 4b.)

This is a common house spider at Deer Island and at northern end of Moosehead Lake, Maine, making its nests like *Z. atrica* under the edges of clapboards. In North Carolina it lives on houses and in bushes at the summit of Roan Mountain, and in houses and barns at the base of the mountain, near the railroad.

Zilla atrica, Koch.

Eucharia atrica, Koch. 1845. (Plate V, figures 4 to 4d.)

In size and color this resembles the other species. The markings of the back of the abdomen resemble closely those of *x-notata,* but the middle of the back is usually lighter, and the two diverging dark marks near the anterior end are longer and narrower than in *x-notata.* The cephalothorax has a more distinct dark middle stripe than in the other species. In the males the palpi (fig. 4a) are twice as long as the cephalothorax, and about twice as long as those of *x-notata.* The front legs of the male are, however, one-eighth shorter than those of *x-notata,* the front tibia and patella measuring a little less than twice the length of the cephalothorax. The form of the epigynum is shown in fig. 4b in comparison with those of *x-notata* and *montana.*

The webs are like those of other species with a large central spiral from which a strong thread extends to the nest. A large segment opposite this thread is usually left open, but is often partly or entirely closed. Adults are found from August until winter.

First noticed by McCook at Annisquam, Mass., about 1885, and now found abundantly at Ipswich, Gloucester, Salem, and Lynn, where it lives in hedges and on the outside of houses, making tubular nests open at both ends under the edges of the clapboards. At Ipswich, I first noticed them on a new cottage near the shore far from any other house, in 1900. At that time there were none of them on other cottages in the neighborhood or on the old farm-house at Lakeman's beach. In 1904 they were on all the neighboring houses and barns and in the liliac bushes around them.

Tetragnatha vermiformis, Em. N. E. Epeiridae.

Positions of male and female while pairing. Fresh Pond marshes

Cambride, Mass. Sept. 3. 1901, 8 a. m. in irregular net on marsh-grass (Pl. V, fig. 5.) Position of mandibles while pairing (fig. 5a.).

Pachygnatha tristriata, Keysl. 1882. (Plate V, figures 6 to 6d.)

This species is not the same as *brevis.* The size is about the same as *brevis,* but both the cephalothorax and abdomen are slightly longer and narrower. The cephalothorax has three stripes in both species, but the abdomen of *tristriata* has the dorsal marking with straight black edges instead of scolloped as in *brevis.* The four middle eyes are raised above the head with the upper pair higher than the top of the cephalothorax, while in *brevis* the eyes are lower than the highest part of the cephalothorax. The cluster of middle eyes is as far above the mandibles as it is high. In *autumnalis* the upper middle eyes are larger than the others and farther apart, and the cluster of middle eyes is much higher than it is distant from the mandibles. In males the differences are more distinct than in females. The male palpi of *tristriata* have the tarsus and palpal organ longer and more slender than in *brevis,* the bulb is narrower, and the tube and narrow end of the tarsus are twice as long as they are in *brevis.* The tarsal hook of *tristriata* is straighter and more slender than in *brevis.*

Orono, Me., Salem, and Gloucester, Mass.

Lycosa avara, Keys. Zool. bot. Ges. Wien, 1876.

L. rufiventris, Banks. (Plate VII, figures 2, 2a.)

This spider resembles very closely *L. pratensis.* The light stripe on the cephalothorax widens behind the eyes, and has a middle dark line and a broken dark line each side of it as in *pratensis.* The front row of eyes, which in *pratensis* is straight, has in *avara* the lateral eyes a little lower than the middle pair. The eyes of the second row are a little larger than in *pratensis,* so that it appears slightly longer than the first row, while in *pratensis* it is slightly shorter; the difference is, however, too small to measure and cannot be seen in all specimens of *pratensis.* The two specimens of *avara* examined vary in size as does *pratensis.* The most distinctive character of *avara* is the form of the epigynum as shown in fig. 2. At first sight it shows a pair of round holes, and it is only by rubbing away the hairs that the shape of the middle lobe can be seen. This is anchor-shaped with the pointed ends curved around so that they point directly forward. There is a slight projection in the middle. At the front end the middle lobe widens, and its edges are continuous with the anterior borders of the two large holes.

Two females were found by Miss E. B. Bryant, one in Allston, Mass., and the other at Long Island, Portland, Maine.

Lycosa frondicola, Em. N. E. Lycosidæ.

L. nigroventris, Em. is the male of this species.

This species and *L. Kochii* are often found in the same localities. They both mature late in autumn and carry their cocoons of eggs in May. *Frondicola* is darker brown and less mottled than *Kochii.* The middle stripe of the cephalothorax is straight in *frondicola* and notched at the sides in *Kochii.* The young of *frondicola* are more mottled on the legs than the adult and resemble the young of *L. cinerea.* The *L. nigroventris* described in N. E. Spiders is an unusually large male *frondicola.* The male is usually two thirds the size of the female with the under side darker. The legs are lighter and the markings on back of abdomen more distinct.

Lycosa carolinensis, Hentz.

Mr. W. L. W. Field of Milton, Mass., has watched for many seasons a large number of these spiders in a pasture on a gravelly hillside, where they make holes six or eight inches deep, sometimes straight and sometimes curved irregularly, to avoid large stones. Sometimes the mouth of the hole is funnel-shaped, spreading to twice the diameter of the lower part of the tube. The males appear only in the late summer, and the fertilized females winter in the tubes which are closed partly by the wheather, and lay their eggs in the last of May or June. In the summer the half-grown spiders are sometimes found without holes, and they have been known to abandon their holes and make new ones.

Lycosa baltimoriana, Keys. Zool. bot. Ges. Wien. 1876. (Plate VII. figures 1, 1a, 1b.)

This is a large and distinctly marked species, the female 15 mm. long, the cephalothorax 8 mm. long, and 5.5 mm. wide. The eye area is small, occupying one-third the width of the head and one-sixth the length of the cephalothorax. The front and second rows of eyes are of the same length. The legs are of moderate length, as in *carolinensis* and *tigrina.* The general color is gray like *carolinensis* with black markings. The cephalothorax has indistinct dark radiating lines. The back of the abdomen has a dark spot following the shape of the heart, and behind it two or three irregular triangular spots, and along the sides are other irregular markings. On the under side of the abdomen is a square black

spot extending from the lung openings back nearly to the spinnerets. The sternum is black. The legs are marked with broken dark rings.

The epigynum is narrow in front with two small openings; it is widened in the middle and has a small T-shaped end behind, Pl. VII, fig. 1b.

The male palpus is much like that of *L. nidicola* fig. 1e, which is from a specimen from Providence, R. I. belonging to Mr. Banks.

From Woods Hole, Mass., and Simsbury, Conn.

Lycosa Pikei, Marx. American Naturalist, 1881.

L. nidifex, Em. N. E. Lycosidae.

L. arenicola, Scudder. Psyche, Vol. II, 1877, name preoccupied by Cambridge in Spiders of Dorset. (Plate VII, figures 3d, 3e.)

The burrows of this species do not usually have a tube of straw or other rubbish around the mouth. The edge of the tube is thickly covered with silk, which extends out sometimes an inch around it on the surface of the sand. In digging, the surface of the sand is first covered thinly with silk. A ball of sand held together by the silk is then gathered up and carried to the mouth of the burrow in the mandibles; there, without the spider coming out of the hole, it is placed on the ends of the front legs, and thrown as far away as possible. In full grown spiders this is about two inches, and the balls of sand may sometimes be seen in a circle of this radius around the hole. When looking for prey, the spider sits with the cephalothorax and front of the abdomen out of the hole and the feet turned under the body as if dead. A step on the sand within ten feet will alarm them and they disappear down the burrow, but by creeping slowly without jarring the ground or throwing a shadow over the hole, one may get within two feet of the spider without disturbing it. The spider will notice an insect moving six or eight inches away and will rush out and catch one at that distance, returning quickly with it to the burrow. The adult males live part of the time in holes like females, and lie out at the top and wait for insects in the same way, but in August and September they are often found wandering. A male confined over night and then turned loose near the burrow of a female at once looked into it, reaching down its whole body except the tip of the abdomen and the fourth legs. It quickly came out, followed to the mouth of the burrow by the female who at once went down again, and returning in a few seconds, seated herself in the usual position over the edge of the hole. The male then approached slowly with the front of

the body raised, alternately reaching forward the front legs and jerking them quickly back until almost near enough to touch the female. She then came toward him and struck at him weakly with her front legs, but he turned them aside, jumped on her back and tried to place his palpus under her. She then attacked him in earnest and drove him away, afterward going down in her burrow and remaining there, and the male soon wandered away.

Young an eighth of an inch in length are found in small burrows of their own from June to August, and in holes with adult females as late as Aug. 10.

Lycosa nidifex, Marx. American Naturalist, 1881. (Plate VII, figures 3 to 3e.)

In N. E. Lycosidae I have confounded this species with *L. pikei*, under the name of *nidifex*.

This inland species differs distinctly from *Pikei* and approaches *L. missouriensis* Banks of the South and West. The epigynum and palpal organs of these three species are so much alike that they cannot be used to distinguish them. In *nidifex* the black color of the under side of the first leg does not extend inward beyond the patella, and the coxæ are all light-colored, while in *Pikei* the whole of the first leg, including the coxa, is black, and in some individuals the whole of the second leg. In *nidifex* the whole upper surface of the body is a nearly uniform gray color with indistinct stripes on the abdomen, while in *Pikei* the color of both upper and under sides is darkest at the head, and gradually lighter backward with a distinct pattern on the abdomen. In *nidifex* the pads on the *tibia* and *metatarsus* are composed of shorter hairs, so that these legs look but two thirds as thick as they do in *Pikei*.

L. nidifex usually makes a turret at the opening of its burrow, sometimes only a slight ring, but often a tube of sticks or grass rising more than its diameter above the surface of the ground. Like *Pikei* the spider sits at the mouth of its burrow with the feet turned under and the head high enough to see the surrounding country. The burrows are often not more than eight or ten inches deep, sometimes curved to avoid stones. The turrets are most conspicuous in October and November, after the surrounding grass has withered. The burrows remain open all winter, the immature spiders lying partly torpid at the bottom. Freshly matured males and females are found in May.

Lycosa punctulata, Hentz. (Plate VII, figures 4, 4a.)

The legs of both sexes are shorter than in *scutulata.* In the male the first and second legs are not as much elongated as in *scutulata,* and the first legs are not darker than the others. The stripe on the abdomen is straight in both sexes, without light spots along the edges as in *scutulata.* The under side of the abdomen has irregular black spots which are wanting in *scutulata.* The palpal organs are shaped much as in *scutulata,* but the tarsi and all the joints of the palpi are a little shorter and stouter than in that species.

Framingham, Mass., Sept. 29, 1906.

Lycosa relucens, Montgomery. Proc. Phil. Acad. Nat. Sci., 1902. (Plate VI, figures 1, 1a, 1b.)

This species matures early in the season and is common around Boston in April in open woods. Its general color is that of dried leaves, and it resembles small individuals of *L. frondicola.* The length is 8 mm., the cephalothorax 4 mm. or a little less. The cephalothorax has a straight white middle stripe, the width of the middle eyes extending from them backward and slightly narrowed behind. There is a narrower white stripe near the edge each side, sometimes broken and indistinct in females, and straighter and more distinct in males. The legs are pale yellowish brown, with the femora faintly marked with gray rings that are sometimes absent, especially in males. The abdomen is indistinctly marked with pairs of gray spots and oblique lines. The epigynum has the common T-shape as wide as long, and a single arched opening in front, Fig. 1b. The male palpus has the tibia thickened so that it is nearly as wide as the tarsus. The tube of the palpal organ is abruptly curved forward, and a thin supporting appendage lies along the side of the tarsal cavity without extending beyond its edge. At the base of the tube is a large thick appendage extending forward, Fig. 1a.

New Haven, Conn., Mass., Lake Champlain, Vt.

Lycosa crassipalpis, new (Plate VI, figures 3, 3a.)

Three small males from Ipswich, Mass., and one from Portland, Me., are only 6 mm. long and the cephalothorax 3 mm. The male palpi have the tibia thickened as in *relucens,* but the tarsus and palpal organ are proportionally smaller and not wider than the tibia. The legs are pale without any gray rings on the femora. The lateral white lines on the cephalothorax are well defined and removed more than their width from the edge as they are in *biline-*

ata. The sternum has a light middle line for half its length, which shows indistinctly in the darker specimens.

Lycosa bilineata.

Pardosa bilineata, Em. N. E. Lycosidæ.

Lycosa ocreata, pulchra, Montgomery. Proc. Phil. Acad. Nat. Sci., 1902. (Plate VI, figures 4, 4a, 4b.)

The female of this species was described in N. E. Lycosidæ, from New Haven, Conn., without the male being known. This was later found at Cold Spring Harbor on Long Island. The female resembles in color and markings *Pardosa pallida* more than it does its nearest relative, *Lycosa ocreata.* It is 6 mm. long, with the cephalothorax 3.5 mm. The colors are light yellow and brown, with gray hairs on the legs and abdomen. The cephalothorax has three pale stripes, the middle one as wide as second row of eyes, the lateral half as wide and a little above the edge. The legs are pale yellow without any markings except faint traces of rings on the femora. The markings on the abdomen are like those of *ocreata*: a dark pointed stripe in the middle bordered by light stripes, outside of which are rows of dark spots. The colors of the male are the same except the tibia and end of the metatarsus of the first leg, which are deep black and surrounded by stiff black hairs, Fig. 4a. The epigynum is much like that of *relucens*, T-shaped, and as wide as long. The male palpi have the tibia slightly enlarged, but not as much as in *relucens* or *ocreata.* The palpal organ is like that of *relucens*, with the appendage supporting the end of the tube longer, so that it projects out over the edge of the tarsus, and the large thick terminal appendage is wanting.

Pardosa littoralis, Banks. (Plate VI, figures 5, 5a, 5b.)

This species described by Banks from Long Island, N. Y., where it is common, has now been found at Ipswich and Plum Island, Mass. The females are 7 mm. long, with the cephalothorax 3 mm. It is not as slender as *pallida* and *nigropalpis*, but has the proportions of *glacialis*, the young of which it much resembles, Fig. 5.

The color is pale yellow with gray markings. The legs are yellow without markings. The cephalothorax has a narrow black line each side and two wide dark stripes leaving a light stripe on each side and a less defined one in the middle. The abdomen has a middle light stripe with indented edges, and the sides are marked with light mixed with gray. In the male all the dark markings are darker than in the female.

The epigynum resembles that of *nigropalpis* but is shorter and stouter, Fig. 5b.

The male palpus also resembles that of *nigropalpis*, Fig. 5a, which I have figured from a Long Island specimen belonging to Mr. Banks.

Pardosa diffusa, new. (Plate VI, figures 6, 6a, 6b.)

Two males from Ipswich and Hyde Park, Mass. are distinguished from the ordinary male *nigropalpis*, even when running on the ground, by the darker color of the cephalothorax. The middle light band is narrow, and hardly shows in front of the dorsal groove. The light bands at the sides are very narrow and close to the edge. The legs are marked on the femora with broken rings darker and closer together from behind forward, the first femora being almost black. In the palpal organs the basal process is shorter and does not have the long curved hook which crosses the tube in *nigropalpis*, Fig. 6a. No mature females have been found in company with this, but females found in August without males in Massachusetts and Maine are supposed to belong to the same species.

The epigynum differs plainly from that of *nigropalpis* and *albopatella*. The anterior pit is rounder and wider, and the transverse posterior end is much wider than in the other species. The females differ in markings from *nigropalpis* and *albopatella* in the same way as the males.

Males from Ipswich, Hyde Park, and Sharon, Mass.

Females from Medford, Mass., Northern Maine, and Long Island, N. Y.

Pirata insularis, Em. N. E. Lycosidae (Plate VI, fig. 7).

A new figure is given of the markings of this species from a specimen from Danvers, Mass.

Pirata arenicola, new. (Plate VI, figures 9 to 9c.)

Female 6 mm. and male 4 mm. long. In the female the lateral light stripes are wide and extend over the edge of the cephalothorax, but in the male the edge of the cephalothorax is marked with a broken dark band. The legs are pale and faintly ringed with gray. On the under side the female is entirely pale, and the male has three gray lines on the abdomen.

The epigynum has two oblique lobes behind slightly pointed on the inner ends.

The male palpi have the tarsi shorter than in *P. sylvestris* more as in *piraticus*. The appendages of the palpal organ are all small,

the terminal process as usual divided into two branches, the outer straight and opaque, the inner thin and transparent and turned across the tarsus.

Ipswich, Mass., June 6, 1903.

Pirata maculatus, new. (Plate VI, figures 10, 10a, 10b.)

6 mm. long, the same size and much like *P. montanus.* The markings are the same as in *montanus,* but the dark portions are much darker, and the rings on the legs more distinct than in any other species. The dark markings of the under side are also more prominent than usual; there is a distinct light middle stripe on the sternum, and a light area in the middle of the abdomen, bordered at the sides with black and partly divided by a middle dark stripe, narrow in front and widened behind. The hinder part of the epigynum is divided into two lobes, slightly pointed in the middle, and showing no opening on the outer side.

Moosehead Lake, Me., Aug. 7. Females with eggs.

Pirata sylvestris, new. (Plate VI, figures 8 to 8c.)

Female 8 mm. long; male 5 mm. long. In the female the usual three light marks behind the eyes are very narrow, but the light marks at the sides are wide and extend to the edge of the cephalothorax. In the male the edges of the cephalothorax are dark and the lateral light markings narrow. The abdomen has the usual gray color with a light middle stripe in the anterior half, and four pairs of bright white spots covered with white hairs and indistinct white lines on the sides and along the sides of the middle stripe. The sternum is pale without stripes. The under side of the abdomen is in some individuals pale, while in others there are traces of three dark stripes. The legs are pale without rings. The epigynum has the usual two lobes behind bluntly pointed on the inner corners where they are partly covered by a middle bunch of fine white hairs. In some light colored females the spermathecæ show through the skin near the outer corners of the lobes.

The tarsus of the male palpus is slender. The palpal organ has the usual two small appendages in the middle, one slender and the other a short and stout tooth. The terminal process is long and curved in quarter of a circle, with the transparent inner branch showing beyond the outer which is thicker and darker.

Dolomedes sexpunctatus, Hentz. (Plate VII, figures 6, 6a, 6b.)

A male from Wellesley, Mass. has the cephalothorax 5 mm. long and the same in width. The hind leg 23 mm. The spider had been put in alcohol very soon after moulting and the legs and palpi are probably not fully extended. The markings are like those of the female and the colors like a young and pale female preserved in the same way.

The male palpus has a long process on the outside of the tibia nearly as long as the joint itself. It is thin and flat, widened and rounded at the end, and has a small tooth on the under side near the base. The end of the tibia is shrunken and should no doubt be wider at the end than at the base, as it is in a Tennessee specimen apparently of the same species. The palpal organ is like that of *D. fontanus.*

A nest of this species was found at Amherst, Mass., Sept. 5, 1905 on golden rod two feet above the ground. The nest was about three inches in diameter, and the young spiders, early in the morning, were gathered in the lower part of it. The female was on the plants a short distance below the nest.

Dolomedes fontanus, Em. New Eng. Lycosidæ.

The male of this species was described and figured in New England Lycosidæ in 1885. The female was described in the same paper under the name of *D. tenebrosus.*

Marx in a note in his catalogue of N. American Spiders in 1890 gave his opinion that these were male and female of the same species, which a study of more specimens has shown to be correct.

The female has the cephalothorax 9 mm. long and 8 mm. wide, and the abdomen varies from 10 mm. to 15 mm. The eyes of the front row are small and the middle pair only slightly larger than the lateral, while in *idoneus* the middle pair are twice as large. The epigynum, which is correctly figured in N. E. Lycosidæ, has a narrow middle lobe bluntly pointed behind. The color in alcohol inclines to be olive, while in *idoneus* it is reddish brown. The marginal white stripes on the cephalothorax in life connect together in front of the head. The light middle stripe, which is distinct on the cephalothorax of *fontanus,* is less so in *idoneus.* The sternum of *fontanus* has a distinct light middle stripe which is absent or very indistinct in *idoneus.*

The male is smaller than the female, with the legs more slender but as long as those of the female. The cephalothorax is as wide as long, measuring 7 mm. The first and fourth legs are of the same